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Does Credit Risk Management affect the Financial Performance of Commercial Banks in Kosovo?

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Abstract

This study analyses the impact of credit risk management on financial performance of commercial banks in Kosovo, and comparing the relationship between the determinants of credit risk management and financial performance by using CAMEL indicators. Panel data of 85 observations from 2008 to 2012 of ten commercial banks was analysed using multiple regression model. Findings through multiple regression analysis are presented in forms of tables and regression equations. The study also elaborates whether capital adequacy, asset quality, management efficiency, earnings and liquidity have strong or weak relationship with financial performance of commercial banks. The study concludes that CAMEL model can be used as a system of assessment and rating of credit risk management by commercial banks in Kosovo.

Keywords: *Commercial Banks; Credit Risk; Financial Performance; Management*

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Introduction

The concept of credit risk is one of the fundamental issues of the banking industry. Because of the practical importance, topics related to the assessment and management of credit risk in banks has become a matter of great concern. Recently, the study of preferences of credit risk from the bank efficiency is developing rapidly and its achievements have become a center of attraction for researchers.

The forces of globalization, financial deregulation and innovation have not diminished the importance of credit risk, although the market risk and off-balance-sheet risk have been in the spotlight during the recent crisis of international financial markets. However, the credit risk is still regarded as the greatest risk for financial institutions. The New Basel agreement on capital has explicitly ruled the burden on banks to adopt the best practices for credit risk management to assess the requirements for their capital adequacy (Basel Committee on Banking Supervision, 2001). Banks, through credit risk management, not only provide and support the sustainability and profitability of their business, but also contribute to stability in a systematic and efficient allocation of capital in the economy.

Credit risk is one of the oldest forms and most significant risk faced by banks as financial intermediaries. It defined as the degree of fluctuation of the value of the debt from the credit due to changes in the credit quality of the borrower or other parties. And, this also is measured as the uncertainty of future credit losses over their expected levels. Credit risk management model is very necessary for any financial institution, since most of the financial decisions revolve around the cost of corporate financing and risk retention (Kinthinji, 2010). Credit risk is defined as the possibility that a bank borrower or counterparty will fail to fulfil its obligations in accordance with the terms of the loan. For financial institutions, credit risk is considered the greatest risk and its effect has the greatest impact on financial performance compared with other risks, and it directly threatens the solvency of financial institutions. The size and extent of losses caused by credit risk compared with other types of risks tends to cause high level of financial losses up to the failing of banks.

Over recent years, banks are faced with difficulties for a variety of reasons, where the main cause of major problems in banks directly related to their poor standards of credit for borrowers and other parties, poor portfolio risk management, or a lack of attention to changes in economic factors or other factors that can lead to a worsening of borrower's creditworthiness of a bank. Banks are faced with the increasing of risk also of other different financial instruments in addition to loans, including acceptances, interbank transactions, trade finance, foreign exchange transactions, futures contracts, swaps, bonds, shares, options, etc. (Kalapodas and Thomson, 2005). The goal of credit risk management is to maximize the rate of return on bank by holding the credit risk exposure within acceptable parameters. Banks need to manage the credit risk of its loan portfolio as well as for individual loans.

Literature Review

Framework of Credit Risk

Credit risk is one of the types of bank risks causing insolvency and bankruptcy of financial institutions and affecting their financial performance. Credit risk, respectively, defined as the risk of loss due to a party or borrower on a credit agreement fails to meet contractual financial obligations in a timely manner. This shows that borrowers fail to make payments on the agreed terms. These losses may take the form of default directly or alternatively by changing the value of the loan portfolio arising from current or anticipated deterioration in credit quality. Credit risk is inherent to the business of lending to funds such as commercial banks and their operations are closely related to market risk variables. Another cause of credit risk is the presence of false borrower's collateral and inadequate documentation. Since banks lend money to customers, they need to provision the potential losses from loans on their books. The higher is the credit risk compared to total loans, the greater should be the provision on potential loan losses. An increase in the amount of provision for loan losses compared to total loans is an indication that the bank's assets can be collected with difficulty. For financial institutions it is very important to practice good and credit risk management. The risk that a business partner fails to meet its obligations in full and on the due date or at any time, present a risk that affect all aspects of the business (Epure and Lafuente, 2013). And for this, the supervisors of financial institutions pay special attention, because such risk is likely to cause the bankruptcy of the bank.

Financial institutions suffer from the credit risk due to the following reasons:

- *Poor management practices:* Such management practices of financial institutions may result in bad debts. This happens when decisions about loans are not effective.
- *Inefficient mechanisms for bad debt:* This means that the mechanisms used to reduce bad debt are not effective.
- *Bank-Insider Transactions:* Some employees of financial institutions may be the cause the bad debt. This happens because these employees engage in illegal activities that cause bad debt that cannot be recovered.
- *Poor credit administration:* Some financial institutions have poor credit administration where decisions or techniques to reduce bad debt are not effective

Credit Risk Management is defined as a bank management tool which enables the bank to maximize the rate of return by maintaining credit risk exposure within acceptable parameters. It is defined as the need for financial institutions to manage credit risk derived from individual creditors, individual transactions and loan portfolio (Altman et al., 1998).

The basic functions of the credit risk management are the identification, measurement and monitoring the bank's profile. By this definition, credit risk management helps financial institutions to be able to control, track and evaluate their various activities in order to prevent and minimize credit risk. Management of credit risk as the bank management tool tends to eliminate, reduce and manage credit risk, increase profits and avoid damage from exposure to risks (Kalapodas & Thomson, 2005). In fact, credit risk management enables financial institutions to improve their financial performance. Also, credit risk management helps financial institutions reduce revenue volatility and avoid large losses. In a proper process of credit risk management it is necessary the identification, measurement and determination of the amount of risk and the development of strategies to manage risk effectively.

The Benefits and Disadvantages of Credit Risk Management

The system of Credit Risk Management as a management tool has brought success to the majority of financial institutions, which are able to adopt it during their daily activities. Benefits from the application of credit risk management includes the minimization of the likelihood of eventual losses from ordinary banking activities by eliminating unnecessary risks in reaching the goal of business. Moreover, credit risk management has created a standardized rating to all borrowers of the bank, by presenting the report of the loan portfolio with meaningful information on the bank's credit quality. Credit Risk Management enables financial institutions to become more stable by realizing sustainable growth, improving solvency and reducing the costs by improving the profit margin. Credit risk management also identifies the need to reduce income volatility, avoiding losses, operates as aid in the process of decision-making, better rate of return compared to risk, etc.. In contrast with the benefits, there are also disadvantages or costs that may prevent some financial institutions to practice the credit risk management. Although these costs, such as costs of expertise, time consuming, expensive practices, can affect the performance of financial institutions, but financial institutions with these experiences are faced usually in the early stages of implementation. Credit risk management is a system that needs careful practice which could prevent increased costs in a bank, it also depends on a strong and total quality management with the employees.

Research and Methodology

This research was conducted using the methods of statistical analysis to achieve its objectives, the research is based on secondary data which are collected by the annual publications of the Central Bank of the Republic of Kosovo (CBK) for the supervision of the banking sector and the relevant publications of commercial banks in Kosovo for the period 2008-2012.

The method used for data analysis is based on statistical analysis methods such as Pearson correlation coefficient and multiple regression model:

$$Y = \beta_0 + \beta_1 X1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where:

Y = Dependent variables;

X1, X2, X3, X4 and X5 = Independent variables;

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Regression coefficients (change involved in from every value X);

ε = Coefficients of error.

The variables used in this model and ways of measuring:

Dependent variable: Dependent variable used in this research is financial performance of commercial banks in Kosovo, expressed through a Return On Average Equity (ROAE).

Independent variables: Independent variables used in this research are CAMEL indicators: Capital Adequacy Ratio (CAR), the quality of assets expressed through Return On Average Assets (ROAA), Management efficiency (% increase of total assets), Net interest margin (NIM) and Liquidity (Liquid assets/ Deposits).

Research Results

Research through the use of multiple regression model and coefficients of correlation and determination aims to determine whether there was linearity or correlation between the independent and dependent variables and financial performance of commercial banks. To calculate the Pearson correlation coefficient were used average values of data for CAMEL indicators for the five year period (2008-2012). Results are presented in Table 1 below:

Table 1: CAMEL Indicators, average values in percentage (%), period 2008-2012

Variables	2008	2009	2010	2011	2012
Return on Average Equity (ROAE)	11.4	13.0	14.8	14.3	7.2
Return on Average Assets (ROAA)	2.4	1.4	1.5	1.4	0.7
Capital Adequacy Ratio (CAR)	16.5	17.9	18.7	17.5	14.2
Management efficiency	16.0	16.8	11.0	8.1	9.7
Net interest margin (NIM)	14.8	10.5	6.4	15.5	13.6
Liquidity (Liquid assets/Deposits)	38.0	45.0	39.0	38.5	35.5

Source: Central Bank of Kosovo (CBK), 2012 Annual Report

Pearson correlation coefficient was used to analyse the relationship between the dependent and independent variables and financial performance. Table 2 below presents the Pearson correlation coefficients matrix between dependent variable and independent variables. Capital adequacy has a correlation coefficient of 0.969 and p-value of 0.001 with the financial performance. This means that capital adequacy has a strong relationship with the financial performance of commercial banks in Kosovo. The correlation coefficient between asset quality and financial performance is positive with correlation coefficient of 0.408 and p-value of 0.474, meaning that there is an average relationship between the asset quality and financial performance. The efficiency of management on the other side has low correlation with financial performance of 0.034 and p-value 0.956. A positive correlation was established between Net interest margin (NIM) and financial performance with value of correlation 0.404 and p-value 0.479. A positive correlation was also observed between liquidity and financial performance with correlation value of 0.514 p-value 0.347.

Table 2: Correlation matrix between variables

	ROAE	CAR	ROA	ME	NIM	L
Return on Average Equity (ROAE)	1					
Capital Adequacy Ratio (CAR)	0.969	1				
Return on Average Assets (ROAA)	0.408	0.389	1			
Management efficiency (ME)	0.034	0.191	0.573	1		
Net interest margin (NIM)	0.404	0.577	0.116	0.138	1	
Liquidity (L)	0.514	0.636	0.161	0.634	-0.367	1

Source: Authors' calculations

Table 3 below presents the relationship between financial performance over the years and the independent variables (liquidity, management efficiency, net interest margin, capital adequacy and asset quality) for the period 2008-2012. Results of regression analysis reflect a strong relationship between dependent variable (financial performance) and the independent variables aggregated with regression coefficient (R) where the lowest value of 0.962 is presented in 2008 and the highest value of 0.974 in 2010. Coefficients of determination (R2) have the highest value where the highest value of 0.949 is presented in 2010, while the lowest value of 0.925 in 2012.

Table 3: Results of multiple regression analysis through years (2008-2012)

Year	R	R^2	adjusted R^2	"F"	p-value
2008	0.962	0.925	0.915	37.195	0.009
2009	0.969	0.939	0.931	46.300	0.006
2010	0.974	0.949	0.925	55.936	0.005
2011	0.970	0.942	0.916	48.550	0.006
2012	0.973	0.947	0.905	53.319	0.005

Source: Authors' calculations

Multiple regression analysis through years 2008-2012

Multiple regression analysis for 2008:

Table 4 below indicates the values of regression coefficients for 2008. The table presents that by maintaining a constant level of capital adequacy, asset quality, management efficiency, net interest margin and liquidity, will not affect the change of financial performance which has a coefficient "B" value of 11,560. Capital adequacy, asset quality and management efficiency have negative coefficient "B" of -0.405, -8.745 and -0.205 respectively. Net interest margin and liquidity have a positive coefficient "B" of 2.335 and 4.862 respectively.

Table 4: Results of multiple regression analysis for 2008

	"B"	Standard error	Beta	"T"	p-value
Dependent variable (ROAE)	11.560				
Capital Adequacy Ratio (CAR)	-0.205	0.042	-0.001	-1.659	0.025
Return on Average Assets (ROAA)	-0405	0.058	-0.805	-3.211	0.000
Management efficiency	-8.745	12.658	0.049	-0.487	0.952
Net interest margin	2.335	0.365	0.652	1.377	0.000
Liquidity	4.862	3.864	0.046	0.623	0.865

Source: Authors' calculations

Multiple regression analysis for 2009:

Table 5 presents the values of regression coefficients for 2009. Maintaining a constant level independent variables (capital adequacy, asset quality, management efficiency, net interest margin and liquidity) will affect the financial performance by increasing it to value of 14.654. Capital adequacy has a negative coefficient of -0.031 and asset quality also had a negative coefficient of -0.612. Management efficiency, net interest margin and liquidity have positive coefficients of 10.500, 1.657 and 0.607 respectively.

Table 5: Results of multiple regression analysis for 2009

	"B"	Standard error	Beta	"T"	p-value
Dependent variable (ROAE)	14.654	2.376		4.135	0.002
Capital Adequacy Ratio (CAR)	-0.031	0.025	-0.033	-0.211	0.820
Return on Average Assets (ROAA)	-0.612	0.065	0.762	3.135	0.005
Management efficiency	10.500	8.652	-0.264	-2.252	0.720
Net interest margin	1.657	0.205	-0.995	1.765	0.000
Liquidity	0.607	4.355	0.002	0.032	0.921

Source: Authors' calculations

Multiple regression analysis for 2010:

Table 6 below presents the values of regression coefficients for 2010. It shows that financial performance will decrease in value of 10.648, if independent variables (capital adequacy, asset quality, management efficiency, net interest margin and liquidity) are held at a constant level. All independent variables have a negative coefficient besides net interest margin. Capital adequacy, asset quality, management efficiency

and liquidity have negative coefficients of regression of values -2.658, -0.156, -4.565 and -0.648 respectively. While net interest margin has a positive regression coefficient of 2,762.

Table 6: Results of multiple regression analysis for 2010

	"B"	Standard error	Beta	"T"	p-value
Dependent variable (ROAE)	10.648	4.213		1.658	0.006
Capital Adequacy Ratio (CAR)	-2.658	3.812	-0.352	-2.654	0.000
Return on Average Assets (ROAA)	-0.156	0.045	-0.185	-1.110	0.025
Management efficiency	-4.565	3.654	-0.288	-2.554	0.205
Net interest margin	2.762	0.285	0.628	4.465	0.000
Liquidity	-0.648	2.354	-0.055	-0.150	0.954

Source: Authors' calculations

Multiple regression analysis for 2011:

Table 7 below presents the results of regression coefficients for 2011. It shows that maintaining a constant level of capital adequacy, asset quality, management efficiency, net interest margin and liquidity, will not impact the financial performance, which will have a value regression coefficient of 14.985. Capital adequacy, asset quality, management efficiency and liquidity have shown negative coefficients of regression with values -0.136, -0.188, -0.8547 and -0.578 respectively. Only net interest margin has a positive coefficient of regression of value 5.678.

Table 7: Results of multiple regression analysis for 2011

	"B"	Standard error	Beta	"T"	p-value
Dependent variable (ROAE)	14.985	0.654		2.647	0.002
Capital Adequacy Ratio (CAR)	-0.136	0.105	-0.206	-2.465	0.001
Return on Average Assets (ROAA)	-0.188	0.220	-0.048	-0.941	0.566
Management efficiency	-8.547	4.354	-0.054	-1.299	0.344
Net interest margin	5.678	0.225	0.954	3.244	0.000
Liquidity	-0.578	2.456	-0.050	0.167	0.789

Source: Authors' calculations

Multiple regression analysis for 2012:

Table 8 below presents the results of regression coefficients for 2012. It shows that the capital adequacy, asset quality, management efficiency, net interest margin and liquidity if held at their constant levels, have not affected the financial performance which has the constant value regression of 7.200. Capital adequacy, asset quality and management efficiency have negative coefficients of regression of values -4.215, -0.025 and -7.652 respectively. Net interest margin and liquidity have positive coefficients regression of 3.445 and 3.467.

Table 8: Results of multiple regression analysis for 2012

	"B"	Standard error	Beta	"T"	p-value
Dependent variable (ROAE)	7.200	1.556		2.080	0.001
Capital Adequacy Ratio (CAR)	-4.215	3.442	-0.103	-1.447	0.100
Return on Average Assets (ROAA)	-0.025	0.125	-0.045	-0.752	0.322
Management efficiency	-7.652	4.233	0.208	-1.845	0.009
Net interest margin	3.445	0.355	0.908	1.024	0.000
Liquidity	3.467	2.856	0.005	0.578	0.236

Source: Authors' calculations

Discussion of results of the analysis of the Impact of Determinants of Credit Risk Management on Financial Performance

This study has found that there is a significant impact between CAMEL indicators on financial performance of commercial banks as shown in Table 3, which presents the model of regression and coefficients of determination for the study period 2008-2012. From Table 3, coefficient of determination R2 in 2008 is 0.925, which means that CAMEL indicators explain 92.5 percent of variations in the financial performance of commercial banks. In 2009, coefficient of determination R2 has the highest value of 0.939 which means that CAMEL indicators explain 93.9 percent of variations in the financial performance of commercial banks. Similarily in 2010, 2011 and 2012 coefficients of determination have values of 0.949, 0.942 and 0.947, meaning that CAMEL indicators explain 94.9 percent, 94.2 percent and 94.7 percent of variations in financial performance of commercial banks. For this reason CAMEL rating system can be used as an indicator of credit risk management in determining the financial performance of commercial banks.

Analysis from Tables 4-8 presents the calculated regression coefficients for period 2008-2012. Table 4 shows that an increase in a unit of capital adequacy will lead to a decline in financial performance for the value of -0.205, an increase in a unit of asset quality will lead to a decline in financial performance at a value of -0.405, and an increase in a unit of management efficiency will lead to a greater decrease of the financial performance in a value of -8.745. Table 4 also shows that an increase in a unit of net interest margin will cause an increase in financial performance for 2.335 and an increase in a unit of liquidity will cause an increase in financial performance for a value of 4.862.

Analysis from Table 5 for 2009 shows that an increase in a unit of capital adequacy will cause a decline of the financial performance in the value of -0.031, and an increase in a unit of asset quality will lead to a decline in the financial performance for value of -0.612. Table 5 also shows that an increase in a unit of management efficiency will lead to an increase in financial performance of 10.5 and an increase in a unit of net interest margin will cause an increase in the financial performance in a value of 1.657. Likewise, an increase in a unit of liquidity will cause an increase in the financial performance in a value of 0.667.

Analysis from Table 6 for 2010 shows that an increase in a unit of capital adequacy will cause a decline in the financial performance for value -2.658, asset quality causes a reduction of financial performance in a value of -0.156, and an increase in management efficiency unit will lead to a decline of financial performance for the value of -4.565. An increase in net interest margin will lead to an increase of financial performance for the value of 2.762, and an increase in liquidity will reflect a decline in financial performance for the value of -0.648.

Analysis from Table 7 for 2011 shows an increase in the capital adequacy unit will cause a decline in the financial performance of the value -0.136, and an increase in asset quality will lead to a decline in financial performance to the value of -0.188. An increase in the management efficiency will lead to a decrease of financial performance in a value of -8.547, and an increase in net interest income will lead to an increase in financial performance for the value of 5.678. Also a unit change in liquidity would cause a negative change in financial performance for the value of -0.578.

Analysis from Table 8 for 2012 shows that an increase in unit of capital adequacy will lead to a decline in financial performance for the value of -4.215, a unit increase in asset quality will lead to a decline in financial performance at a value of -0.025, and an increase in the management efficiency will lead to a greater decrease of the financial performance for the value of -7.652. Table 7 also shows that an increase in unit of net interest margin will cause an increase in financial performance for the value of 3.445. While an increase in liquidity unit will cause an increase in financial performance for the value of 3.467.

Conclusion

The main objective of this study was to investigate the impact of credit risk management on financial performance of commercial banks in Kosovo, and determining the relationship between the determinants of credit risk management and financial performance by using CAMEL indicators. The study concludes that CAMEL indicators has a strong impact on financial performance of commercial banks in Kosovo and are

able to explain up to 94.9 percent of variations in financial performance of commercial banks in Kosovo. CAMEL indicators can be used as a system of assessment and rating of credit risk management for commercial banks. For the period studied 2008-2012, capital adequacy, liquidity and net interest margin have stronger relationship with financial performance of commercial banks. While the management efficiency and quality of assets reflected a weaker but not negative relationship with financial performance of commercial banks in Kosovo. Commercial banks in Kosovo must have a comprehensive strategy of credit risk management based on the improvement of CAMEL indicators such as: growth of capital adequacy, improving asset quality, strengthening the sustainability and efficiency of management, increasing income, securing and maintaining of adequate level of liquidity and reducing sensitivity to credit risk. Commercial banks must adopt sophisticated and mitigating techniques for credit risk management by including hedging credit risk, maintaining an adequate level of provisions for non-performing and problem loans, new agreements with more favourable terms for insolvent clients, transfer of credit risk to third parties, extension of maturity and changing the deadline for repayment of non-performing loans, decreasing the interest rates for loans and partial repayment of loans with considerable delays. Commercial banks must strengthen the role of Credit Risk Committee and completely implement and adopt the requirements of the Basel agreement.

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